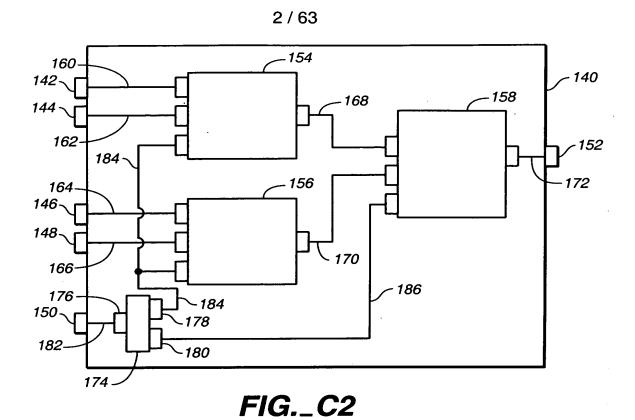


14



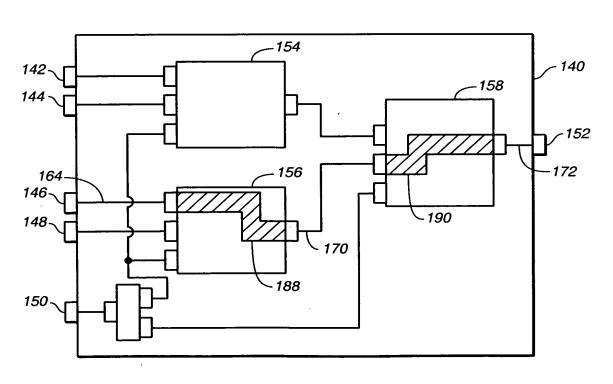
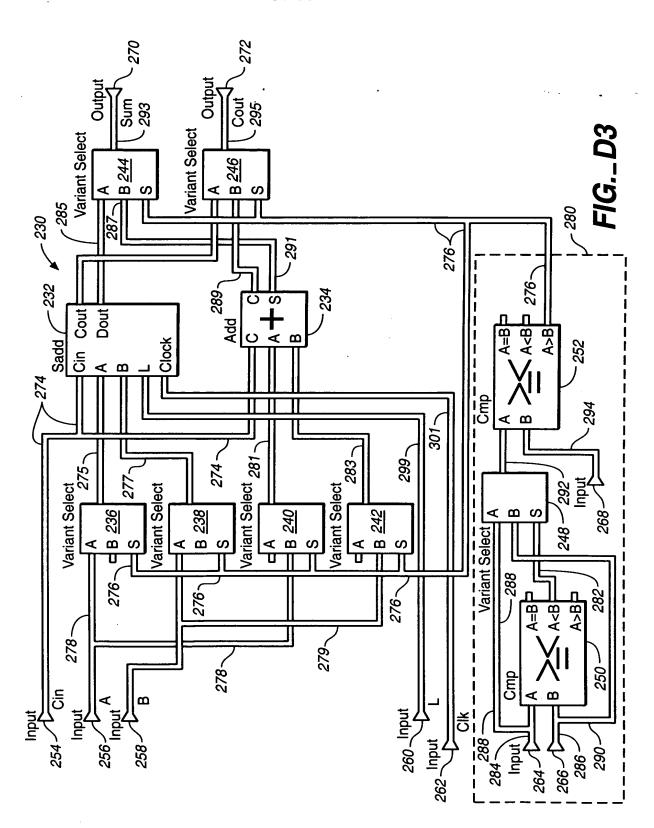
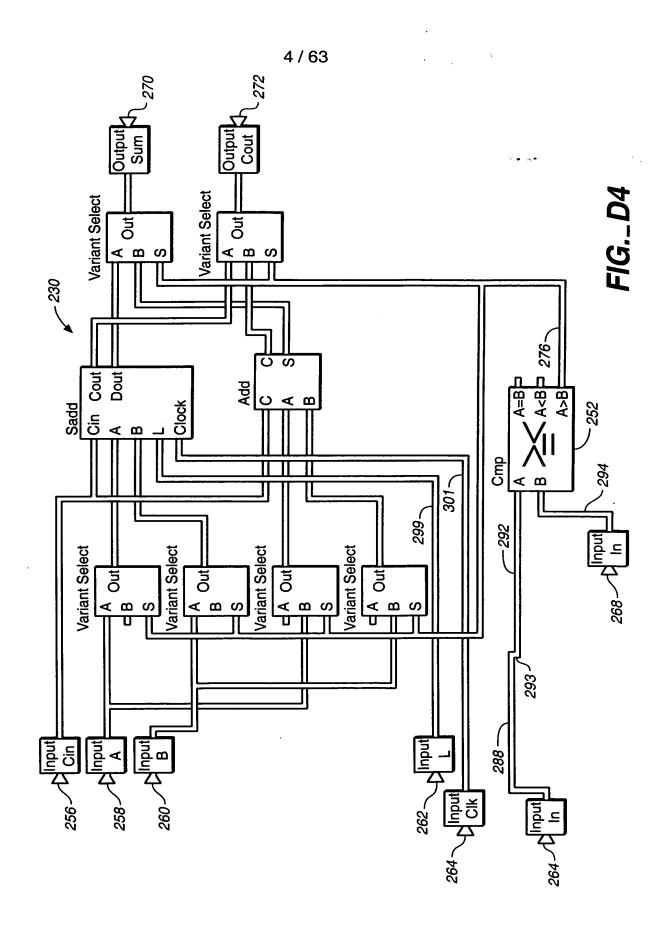
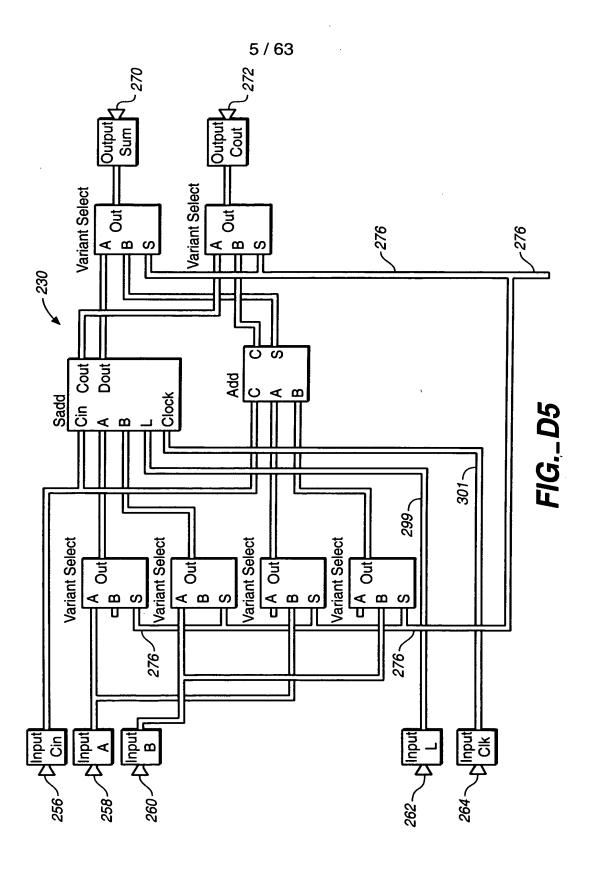


FIG._C3







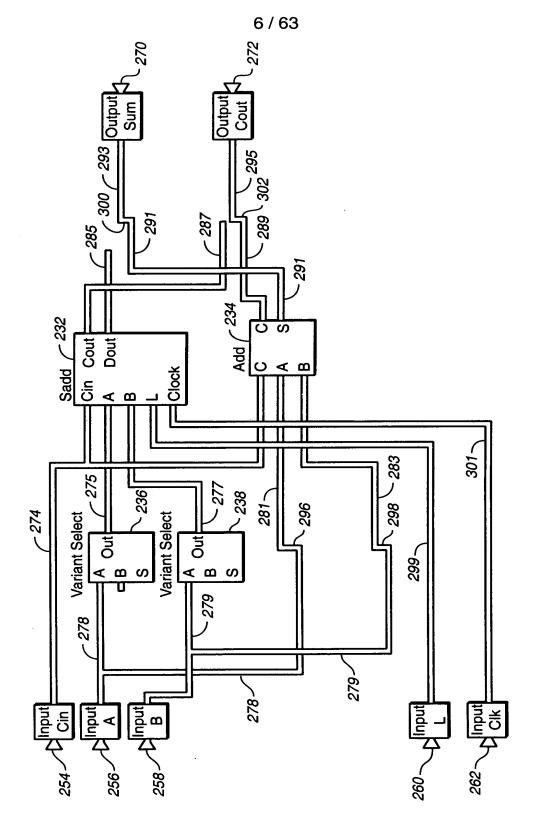
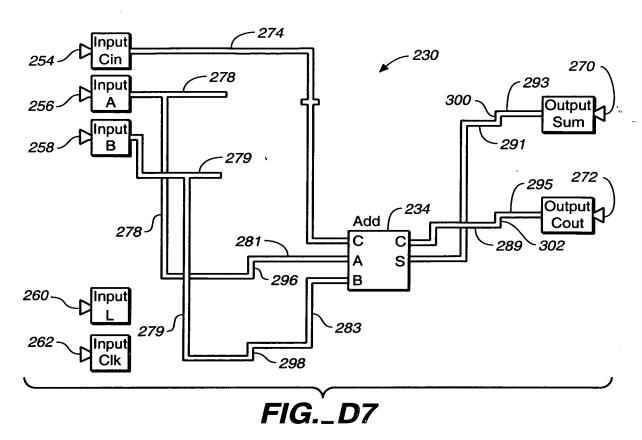
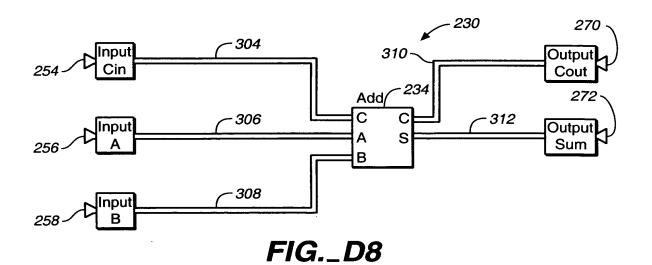
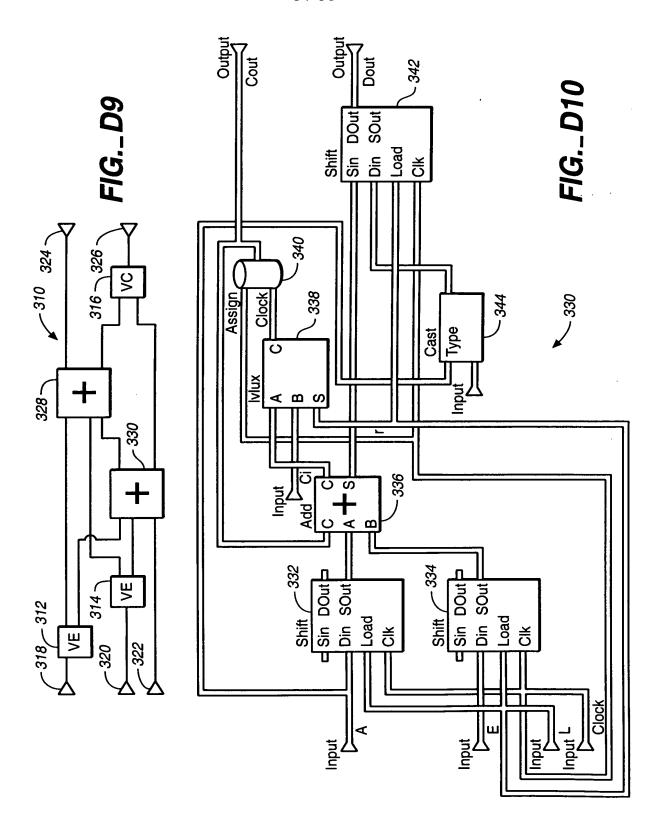
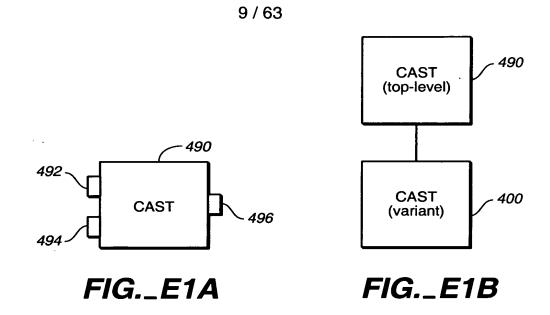


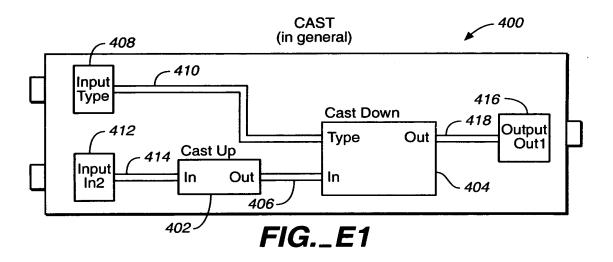
FIG._D6











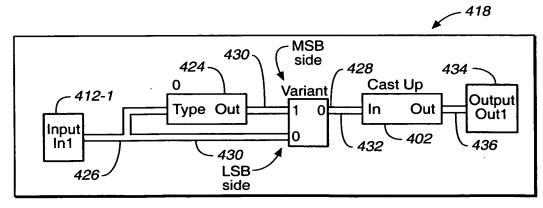


FIG._E2

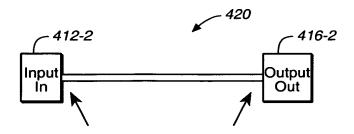


FIG._E3

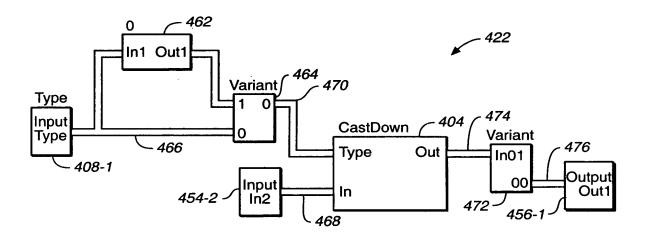


FIG._E4

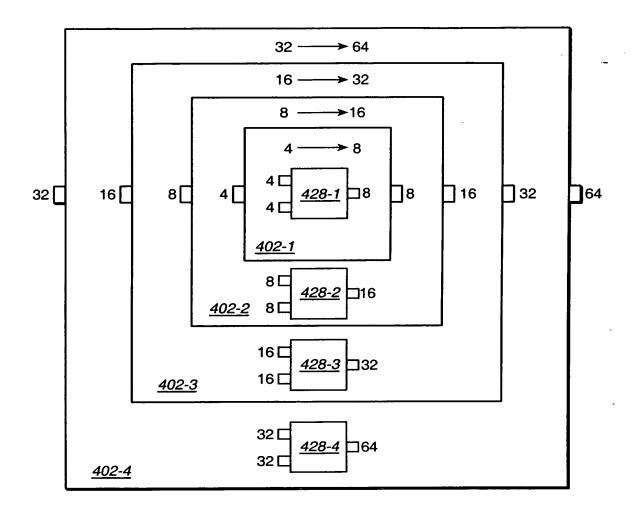
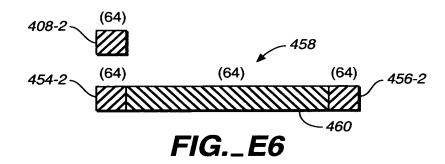
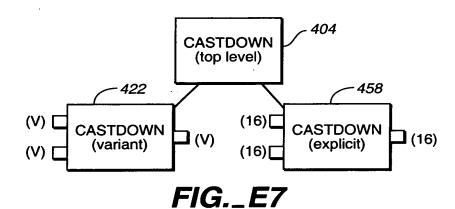


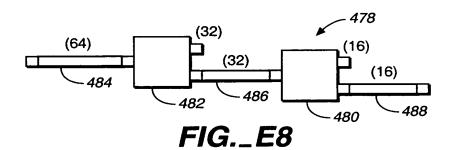
FIG._E5

12/63

. . .







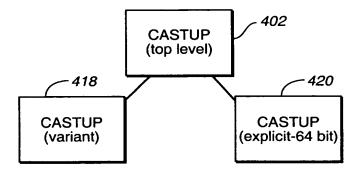


FIG._E9

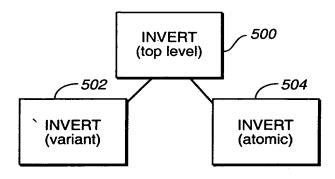


FIG._F1

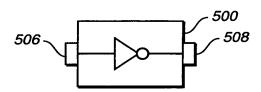


FIG._F2

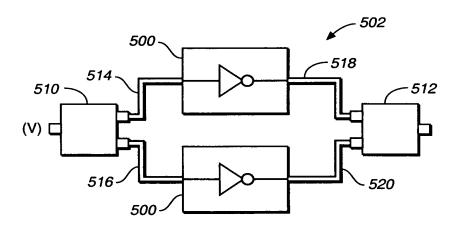


FIG._F3

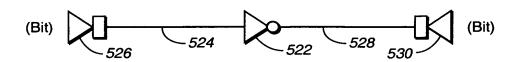


FIG._F4

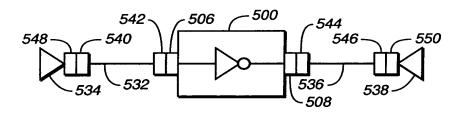


FIG._F5

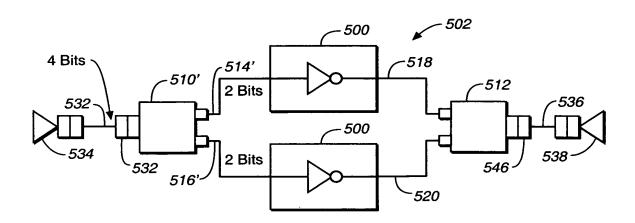
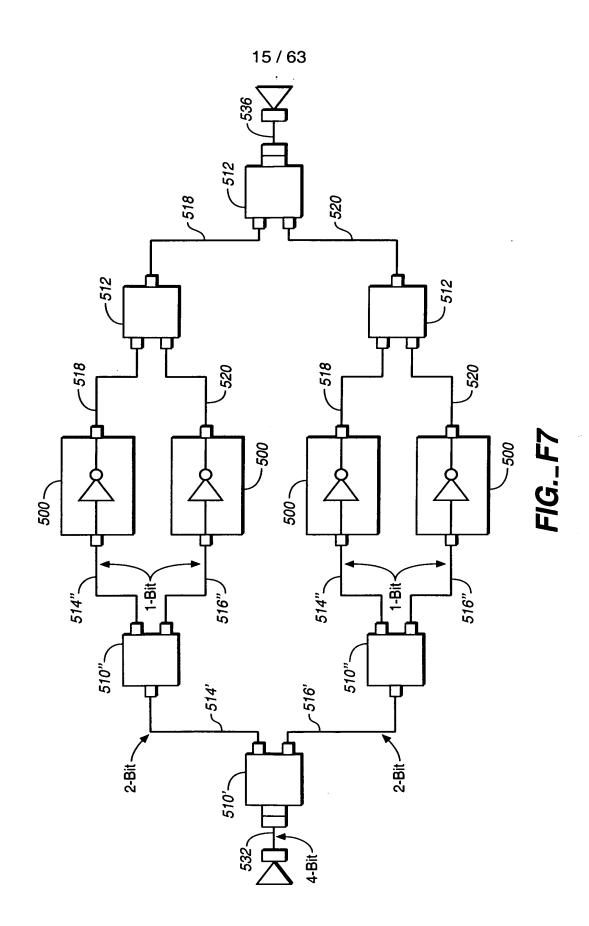
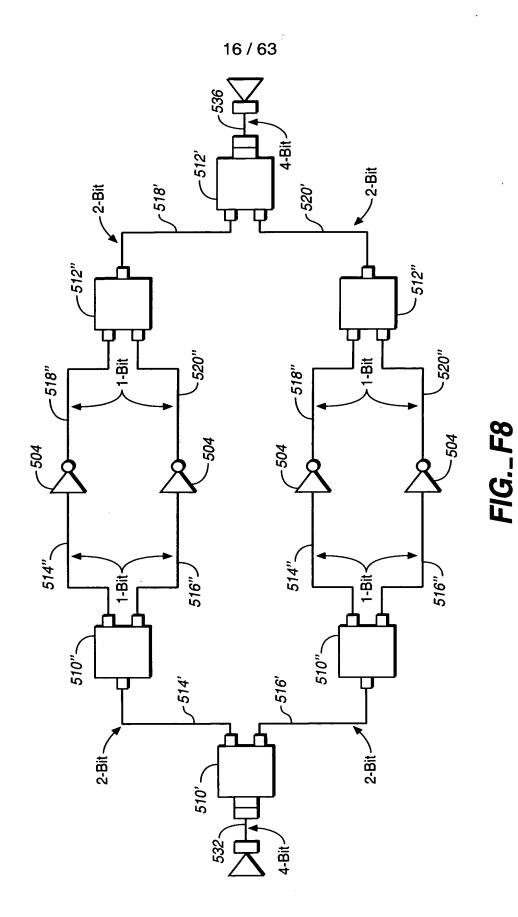


FIG._F6





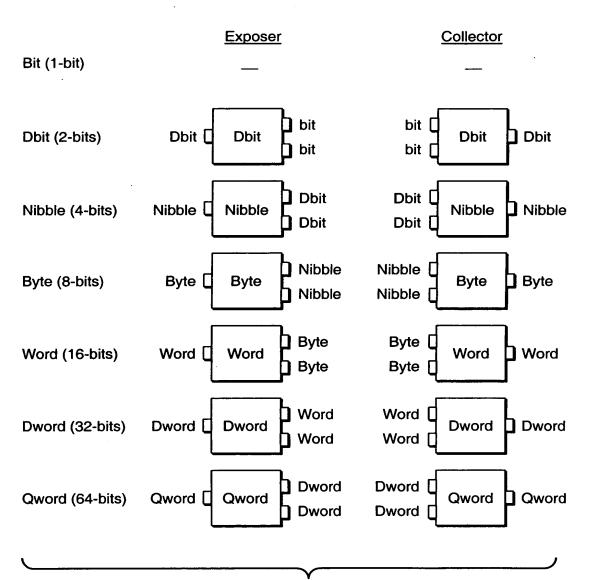
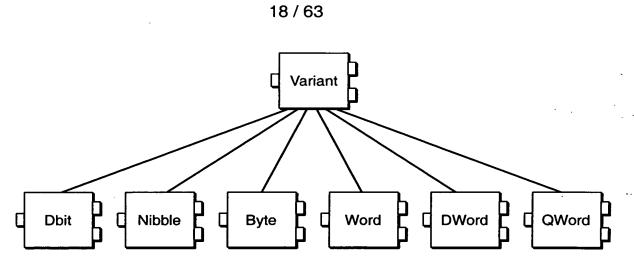


FIG._G1





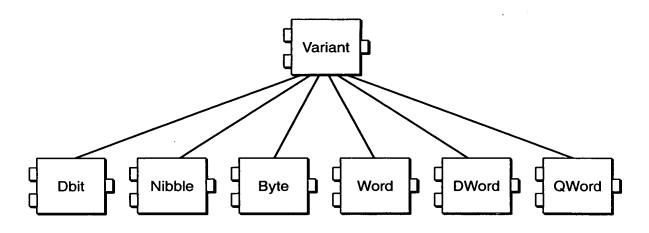


FIG._G3

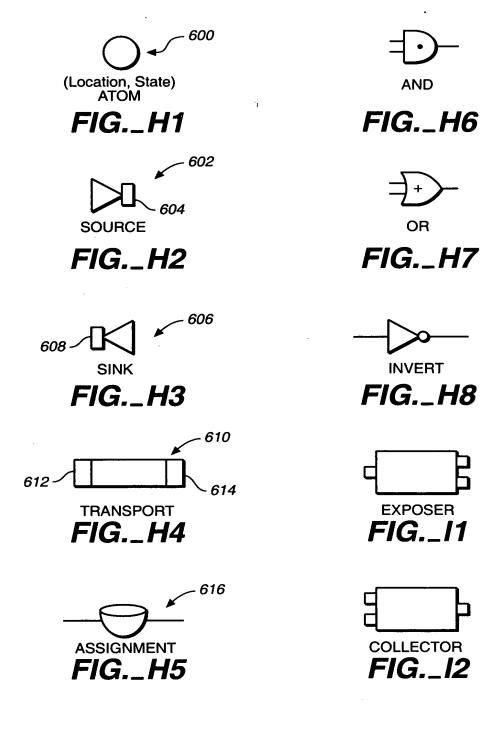
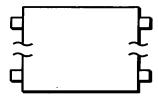




FIG._I3



COMPOSITE OBJECT

FIG._14



TRANSPORT JUNCTION

FIG._15

Menu Commands

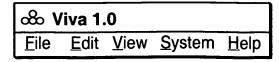


FIG._J-1

File Menu

∞ V	∞ Viva 1.0				
<u>F</u> ile	<u>File</u> <u>Edit</u> <u>View</u> <u>S</u> ystem				
	ve Pro	oject		F2 F3 F4	
🕸 Op	en Sh	et e Sheet eet eet As.		F5 F6 F7	
<u> </u>	nvert lete S ay/Stop	Sheet theet Sheet	o Object t	F8 F9	
Pri Pri	nt nt Set	up			
E <u>x</u>	it		·		

FIG._J-2

FIG._J-3

New Project
Open Project
Save Project
Save Project As
Save Project As
New Sheet
Duplicate Sheet
Open Sheet
Save Sheet As
Convert Sheet to Object
Delete Sheet
Play/Stop
Print
Print Setup
Exit

Quits VIVA.

New Project Command

∞ Viva 1.0		
File Edit View System Help		
New Project Open Project Save Project Save Project As Save Project As Text	F2 F3 F4	
■ New Sheet ■ Duplicate Sheet ■ Open Sheet ■ Save Sheet As	F5 F6 F7	
 ☐ Convert Sheet to Object ☐ Delete Sheet Play/Stop Sheet 	F8 F9	
Print Print Setup Exit		

FIG._J-4

Open Project Command 🕥

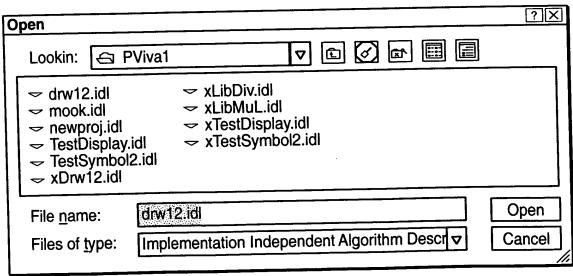


FIG._J-5

Save Project Command

∞ Viva 1.0		
<u>File</u> <u>Edit View System</u>	<u>H</u> elp	
New Project Open Project Save Project Save Project Save Project As Save Project As Text	F2 F3 F4	
 New Sheet Duplicate Sheet Open Sheet Save Sheet As 	F5 F6 F7	
 ☐ Convert Sheet to Object ☐ Delete Sheet Play/Stop Sheet 	F8 F9	
Print Print Setup		
E <u>x</u> it		

FIG._J-6

Save Project As Command

Save in: PViva1	Save As		?×
 ✓ mook.idl ✓ newproj.idl ✓ xTestDisplay.idl ✓ TestDisplay.idl ✓ TestSymbol2.idl ✓ xDrw12.idl File name: xTestDisplay.idl Save 	Save in: 🔄 F	PViva1 ▼ 🗈 🕢 🗗 🗏	
	✓ mook.idl✓ newproj.idl✓ TestDisplay.✓ TestSymbol	✓ xLibMuL.idl✓ xTestDisplay.idlidl✓ xTestSymbol2.idl	
	_		

FIG._J-7

New Sheet Command

∞ Viva 1.0	
<u>File</u> <u>Edit</u> <u>View</u> <u>Sys</u>	stem <u>H</u> elp
 № Project ○ Open Project ○ Save Project ○ Save Project As ○ Save Project As Tex 	F2 F3 F4
New Sheet	F 5
Duplicate Sheet Open Sheet Save Sheet As	F6 F7
	oject F8
□ Delete Sheet▷ Play/Stop Sheet	F9
Print P <u>r</u> int Setup	
E <u>x</u> it	

FIG._J-8

Duplicate Sheet Command

∞ Viva 1.0	
<u>File</u> <u>Edit</u> <u>View</u> <u>System</u>	<u>H</u> elp
 New Project Open Project Save Project Save Project As Save Project As Text 	F2 F3 F4
New Sheet	F5
Duplicate Sheet	
Some of the state of the st	F6 F7
	F8
Play/Stop Sheet	F9
<u>P</u> rint P <u>r</u> int Setup	
E <u>x</u> it	

FIG._J-9

Open Sheet Command 🚳

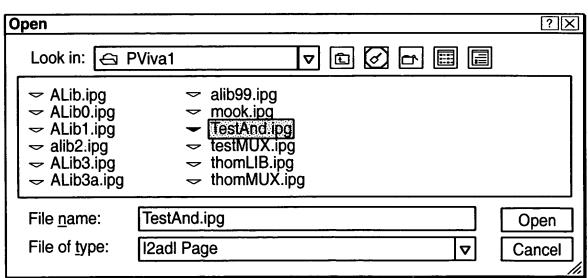


FIG._J-10

moraran ... morar

Save Sheet As Command

New Project	
Save Project F4	
Save Project As Text	X i
 ■ New Sheet ■ Duplicate Sheet 	Save in: 🕾 PViva1 🔻 🗖 🗗 🖾 🗁 🗐
Open Sheet F6 Save Sheet As	D D
Object F8	ALIb1.ipg ~ lestAnd.ipg alib2.ipg ~ testMUX.ipg ALib3.ipg ~ thomLIB.ipg
Print Print Setup	ame: Sheef 1 pg Save
	Save as <u>type: Izadl Page </u>

×回-

Tree Group | Composite Objects Documentation – Update Original Object XCancel ☐ Leave Sheet Open☐ View Control Nodes Convert Sheet To Object Command DataSets Byte Byte Bit **DataSets** Outputs: (Set) ScrollBar3 Position DWord **>** Convert Sheet to Object O Create New Object Object Name | Sheet 1 ScrollBar1 OnChange S Attributes -Inputs In1 ln2

FIG._J-12

FIG._J-13

FIG._J-14

Delete Sheet Command **∞** Viva 1.0 Edit View System Help <u>F</u>ile New Project F2 © Open Project F3 ☐ Save Project☐ Save Project As... F4 Save Project As Text... New Sheet F5 Duplicate Sheet F6 B Save Sheet As... F7 歐 Convert Sheet to Object F8 Delete Sheet Play/Stop Sheet F9 **Print** Print Setup...

Viva Error Message				
· · · · · · · · · · · · · · · · · ·	Warning			
Error Number:	45			
Message: Ok to close sheet without saving changes?				
	☐ Disable this message in the future Help ☐ Disable all future error messages ✓ Yes			

E<u>x</u>it

FIG._J-15

Run Behavior Page

∞ Viva 1.0			
Eile Edit View System Help			
New Project Open Project Save Project Save Project As Save Project As Text	F2 F3 F4		
New Sheet Duplicate Sheet	F5		
Solution Sheet Save Sheet As	F6 F7		
	F8		
Play/Stop Sheet	F9		
Print Print Setup			
E <u>x</u> it			

FIG._J-16

Print Command

∞ Viva 1.0	
<u>File</u> <u>Edit</u> <u>View</u> <u>System</u>	<u>H</u> elp
New Project Open Project Save Project Save Project As Save Project As Text	F2 F3 F4
New SheetDuplicate Sheet	F5
Save Sheet As	F6 F7
	F8
Play/Stop Sheet	F9
Print	
Print Setup	
E <u>x</u> it	i

FIG._J-17

Print Setup Command

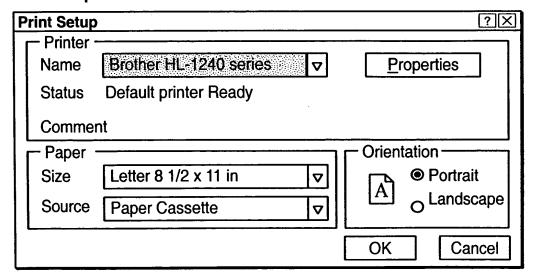


FIG._J-18

Exit

ر ش	∞ Viva 1.0			
<u>File</u> <u>Edit</u> <u>View</u> <u>System</u> <u>He</u>			<u>H</u> elp	
	ew Pro pen Pro ave Pro ave Pro ave Pro	oject oject oject <u>A</u> s		F2 F3 F4
D 🖺 D	ew She	e Sheet		F5
	pen Sh a <u>v</u> e Sh			F6 F7
事 C 身 D	onvert elete S	Sheet t	o Object	F8
→ P	lay/Sto	p Sheet	<u>t</u>	F9
	rint <u>r</u> int Set	up		
E	xit			

FIG._J-19

Edit Menu

∞ Viva 1.0			
<u>F</u> ile	Edit Vie	ew <u>S</u> ystem	
a	<u>U</u> ndo		
	<u>C</u> ut	Ctrl+X	
		Ctrl+C	
	<u>P</u> aste	Ctrl+V	
	<u>D</u> elete	Del	

FIG._J-20

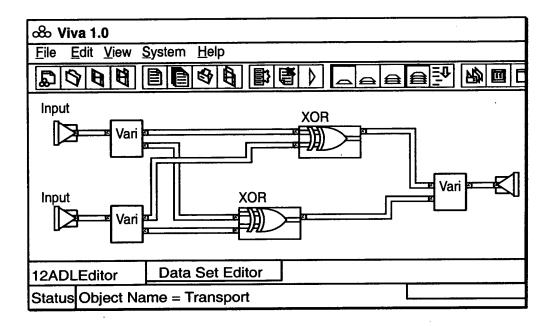
View Menu

∞ Viva 1.0				
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>S</u> ystem <u>H</u> elp	
	9		Object Names	
		A	Node Names	
		£	No <u>d</u> es	
		£	Sort by Tree Group/Name	
		Ē	Descend Into Sheet	F10

View Object NamesDisplays the object name above each object.View Node NamesDisplays each node name instead of each node's icon.View NodesDisplays node colors on Transports. (Node colors correspond to data types).Sort by Tree Group/NameSorts the Object Tree in alphabetical order.Descend into SheetThis displays the Behavior Page of the selected object. (This feature is also available by double-clicking on the object.)

FIG._J-21

View Object Names



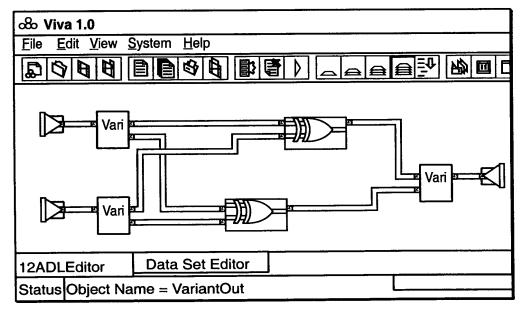
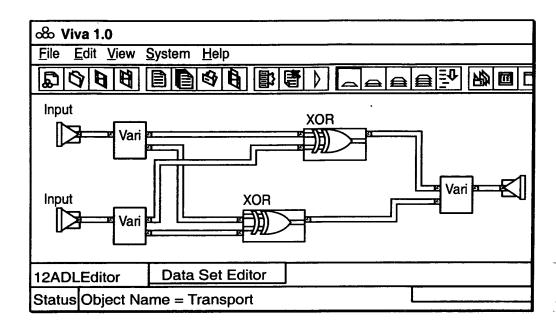


FIG._J-22

View Node Names



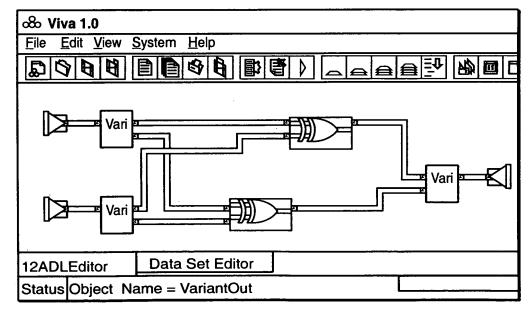


FIG. J-23

33 / 63 View Nodes

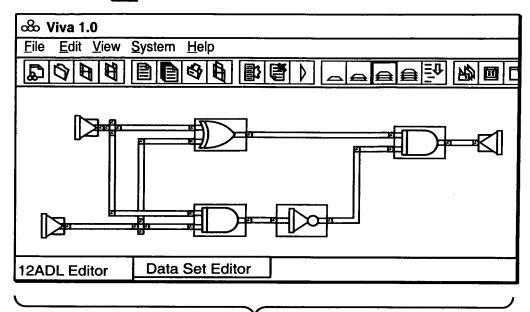
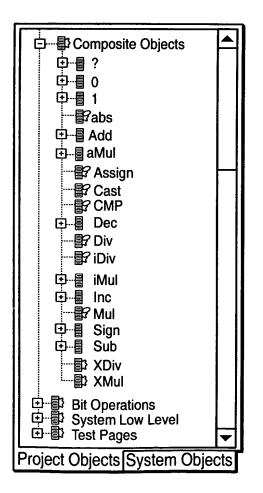


FIG._J-24



FIG._J-25



Descend Into Sheet

The <u>Behavior Page</u> of a VIVA Module can usually be diplayed by either double clicking on the object, or by clicking on the descend icon after the Module has been selected using a left mouse click. The following is the Behavior Page for an Exclusive OR Module.

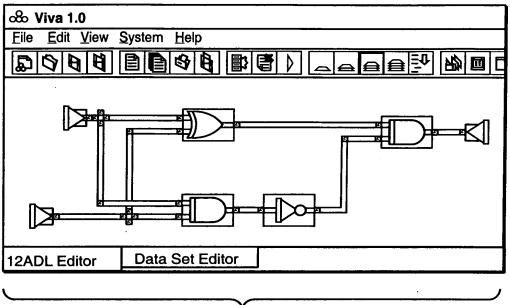
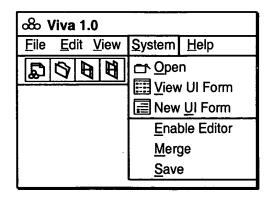


FIG._J-26

System Menu



Open System Select the target system (X86 or Floating Point Gate Array).

FIG._J-27

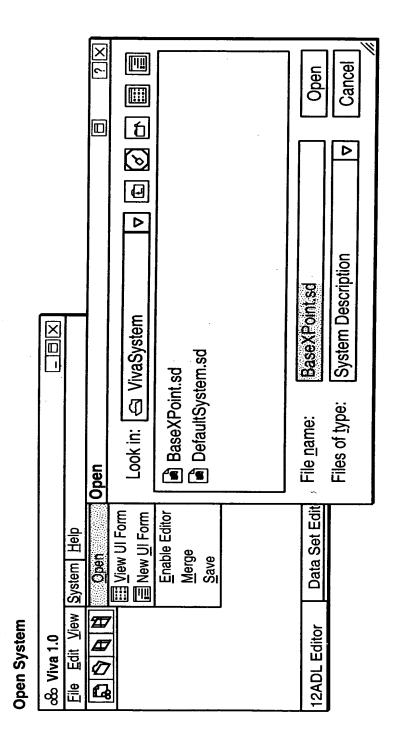


FIG._ J-28

X E E

DOTATEDE DTD GDE

0000FFFF 0000FFFF 255 | 255 | 255 | 255 | 255 | 255 | 255 0000FFFF 0000FFFF 0000 0000 0000 0000 0000 0000 • Þ **I** 4 4 D • Þ **VIEW UI Form** 1 **I** 1 Þ **⊞** Form1 ▶

DOTATEDE DISTRI

NEW UI Form

III Cancel Open Ó D VivaForms DefaultInterface.dll
 DrawInterface.dll Files of type: File <u>n</u>ame: Open Ch Open III View UI Form Enable Editor <u>M</u>erge <u>S</u>ave Eile Edit View System Help & Viva 1.0

FIG._J-30

Help Menu

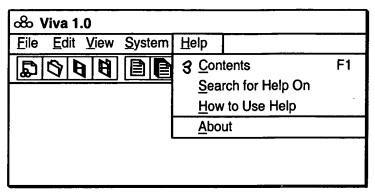


FIG._J-31

■ About VIVA	
VIVA Version 1 0	
Copyright © 07 Sep 2000 StarBridgeSystems	
Revision 0059 ✓ OK	

FIG._J-32

ToolBar Controls

The Graphical User Interface of VIVA was designed to allow you to specify the desired behavior of the target computer environment.

File Commands

New Project Clears all objects, pages, and Modules.

Open Project Load and display a VIVA project.

Save Project Saves the current project.

Save Project As Saves and renames the current project projects.

New Sheet Creates a new blank sheet.

<u>Duplicate Sheet</u> Duplicates the current sheet.

Open Sheet Loads a sheet from a file.

Save Sheet As Saves current sheet as a file.

Convert Sheet Captures sheet behavior as a VIVA Module.

<u>Delete Sheet</u> Erases and deletes current Behavior Page.

Run/Stop Executes the behavior on the displayed Behavior Page.

View Details

<u>View Object Names</u> The names of the objects are displayed above the objects.

<u>ViewNode Names</u>

The names of the nodes of the objects are displayed instead of the

object's icon.

₩ View Nodes The node colors are displayed on Transports. (Node colors correspond

to data types.)

Sort by Tree Group/Name Sorts the Object Tree in alphabetical order.

Descend into Sheet Display the Behavior Page of the selected object (Also available by

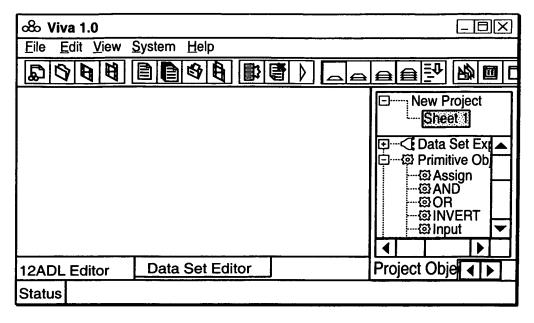
double-clicking on the object.)

Open System Selects the target system.

<u>View UI Form</u> Displays the User Interface Form.

New UI Form Allows you to Select a new User Interface Form.

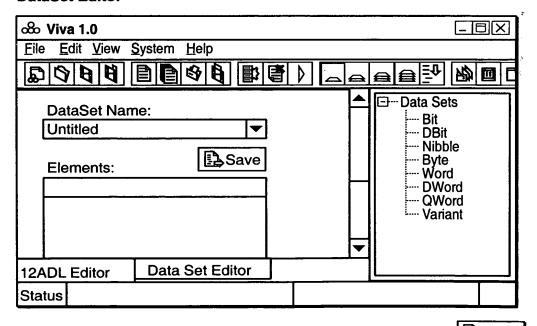
DataSet Editor



-: ::::

FIG._J-34

DataSet Editor



When done with defining the new data set, you press the Save Button

FIG._J-35

Edit Attributes Dialog

■ Edit Attributes	BX				
Object Name Add Attributes	Tree Group Composite Objects □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □				
Inputs: In2 Variant In1 Variant C Bit Outputs: C Bit Out2 Variant Attributes: View Control Nodes OK Cancel	Generic polymorphic addition. Produces the correct result for unsigned integers, signed integers, and fixed point. The result is cast to the type of the lower input. This module also produces the correct result for a mixture of signed and unsigned inputs.				

FIG._J-36

Constructing VIVA Modules FIG._J-37



FIG._J-37-1

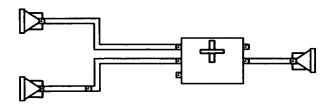


FIG._J-37-2

Behavior Pages

FIG._J-38



FIG._J-38-1

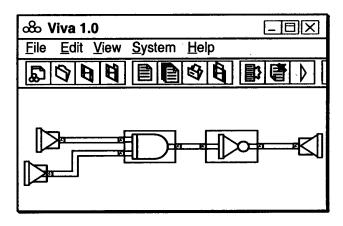


FIG._J-38-2

Convert Sheet to Object command from the File Menu, or select the ToolBar icon,



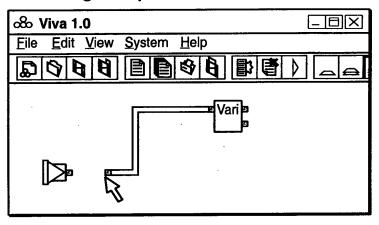


This Module may now be used to contruct other behavior pages for Modules with more complex behavior.

Node labels for the inputs and outputs of the NAND Module are the same labels on the inputs and outputs of the Behavior Page.

FIG._J-38-4

Connecting Transports



::

FIG._J-39

Connecting Junctions

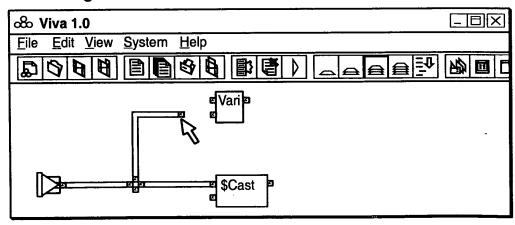


FIG._J-40

Convert Sheet To Object Command

区 日 -Þ Tree Group | Composite Objects Documentation -Update Original Object XCancel ☐ Leave Sheet Open ☐ View Control Nodes Inputs: DataSets: Inf Byte Inc Byte Inc Byte ScrollBar1 OnChange S Bit Jutputs: DataSets: Set) ScrollBar3 Position DWord Values **≯** ☐ Convert Sheet to Object O Create New Object Object Name | Sheet 1 – Attributes – Itinbutes.

FIG._ J-41

Tree Group Composite Objects ▼

FIG._J-42

Object Trees

FIG._J-43

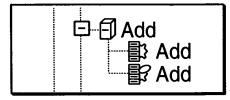


FIG._J-44-2

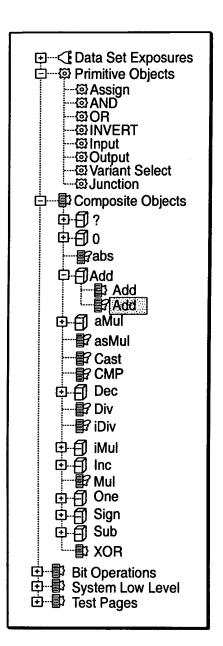


FIG._J-44-1

Modifying an Input

	_
Object Name Ir	put
Name: In1 Attributes:	DataSet: Variant Values:
	View Control Nodes OK Cancel

FIG._J-45

Modifying an Output

	es□×
Object Name	Output
Name: Out1 Attributes:	DataSet: Variant Values:
	☐ View Control Nodes OK Cancel

FIG._J-46

VIVA Constants

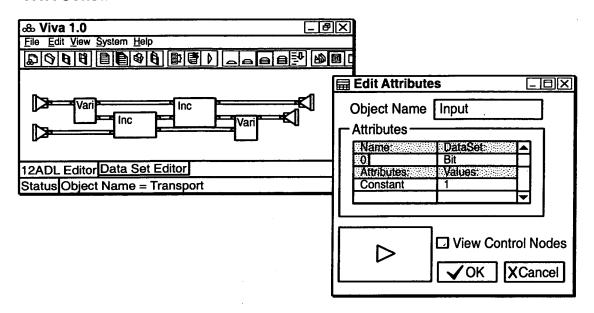


FIG._J-47

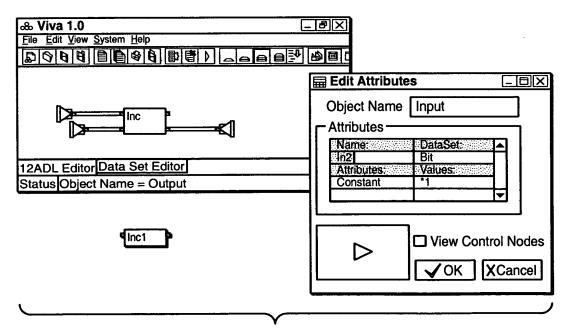


FIG._J-48

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Forcing GateWare Allocation

Edit Attribute	\$	
Object Name	OR	Tree Group Composite Objects
Attributes	——————————————————————————————————————	Documentation —
Inputs: In1 In2 Outputs: Out1 Attributes: ChildAttribute	Variant Variant Variant System=XPoint*	A
	☐ View Control Node	es l

FIG._J-49



Out

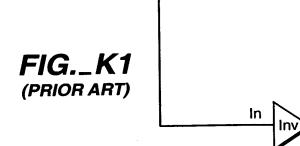


FIG._K2
(PRIOR ART)

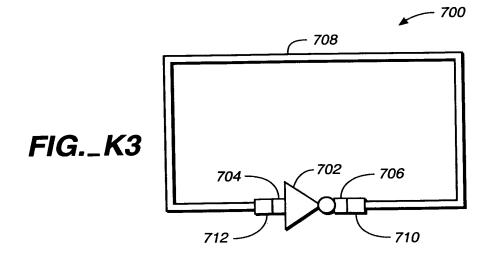
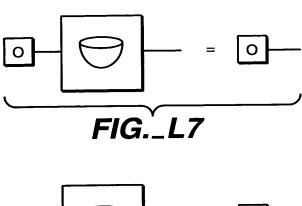
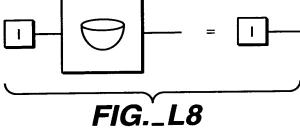
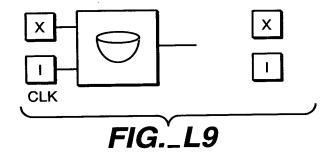


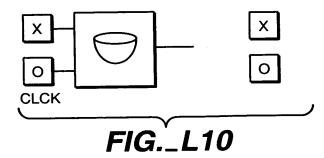
FIG._L3
$$\left\{\begin{array}{c} \bigcirc \\ \times \end{array}\right\}$$

FIG._L5
$$\left\{\begin{array}{c} \downarrow \\ \times \end{array}\right\} + \left[\begin{array}{c} \downarrow \\ \times \end{array}\right]$$









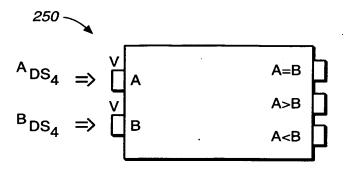


FIG._L11

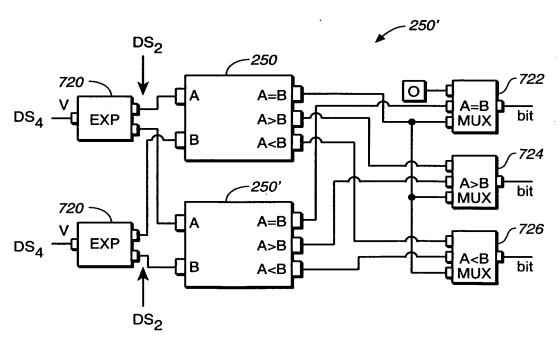


FIG._L12

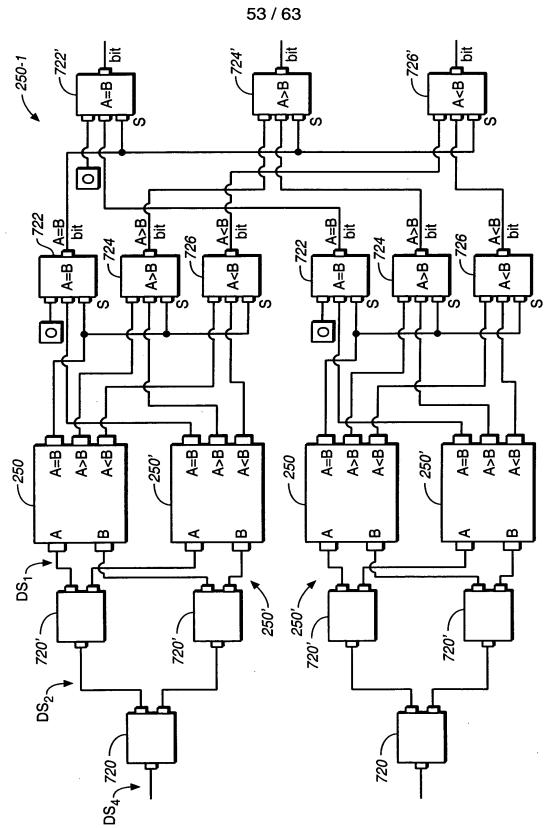
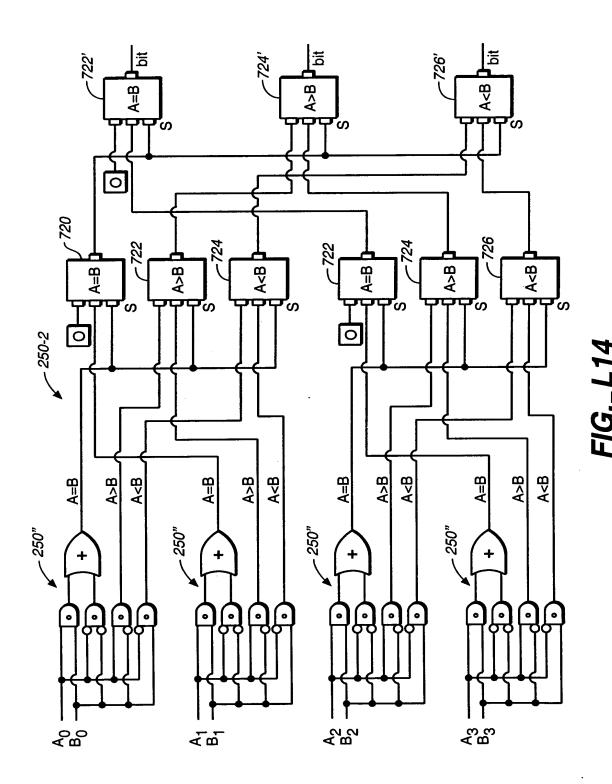


FIG._L13



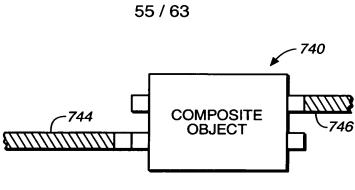


FIG._M1

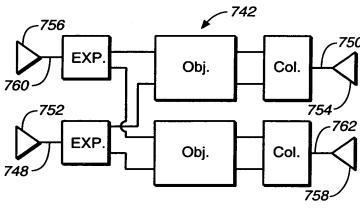


FIG._M2

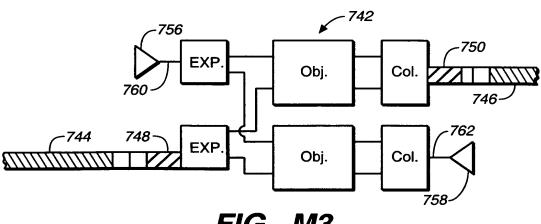
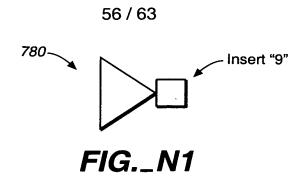


FIG._M3



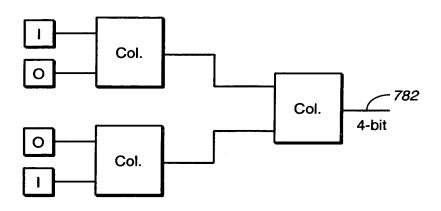


FIG._N2

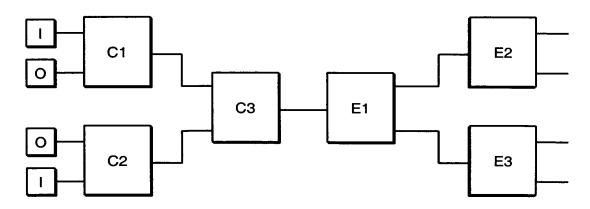
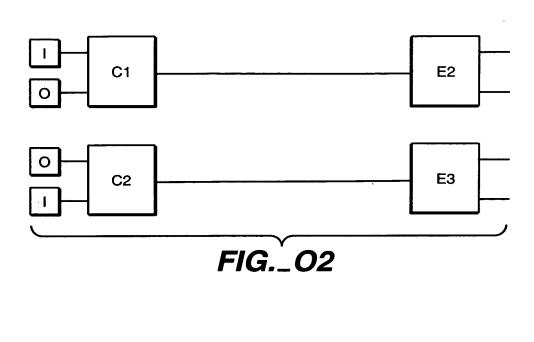
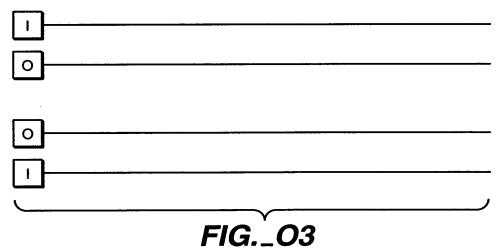


FIG._01



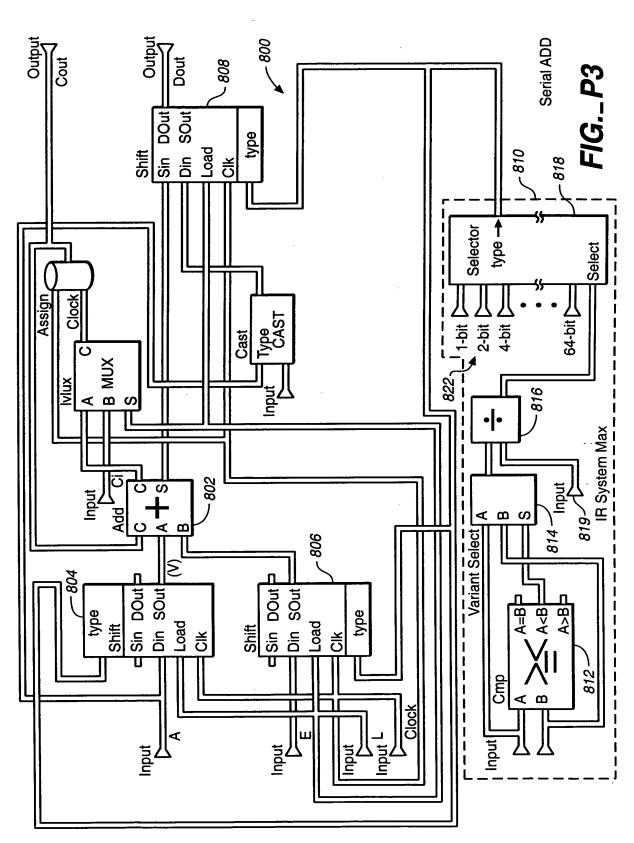


Carry	1		0		1		
А		1	1	0	1	1	0
В		1	0	0	0	1	0
Sum	1	0	1	1	0	· O	0

FIG._P1

Carry	1	0	0	1	1	0	/
А		1	1	0	1	1	0
В		1	0	0	0	1	0
Sum	1	0	1	1	0	0	0

FIG._P2



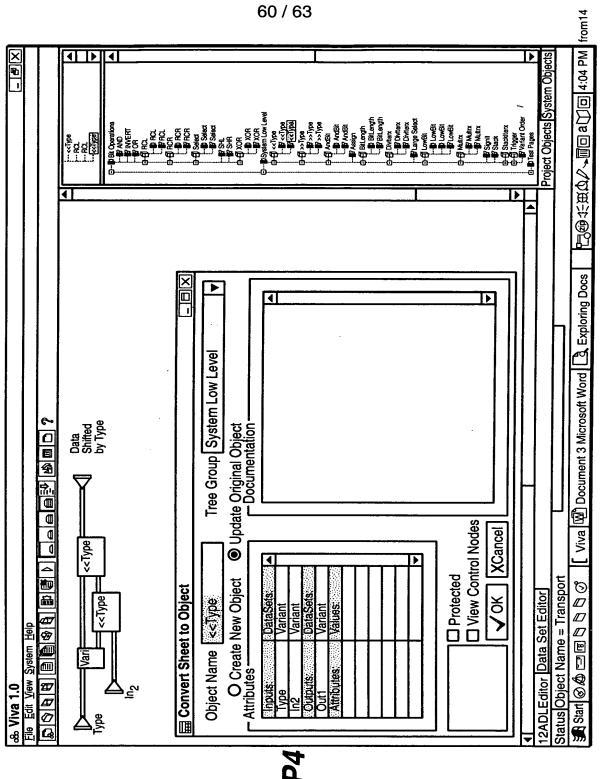


FIG._P4

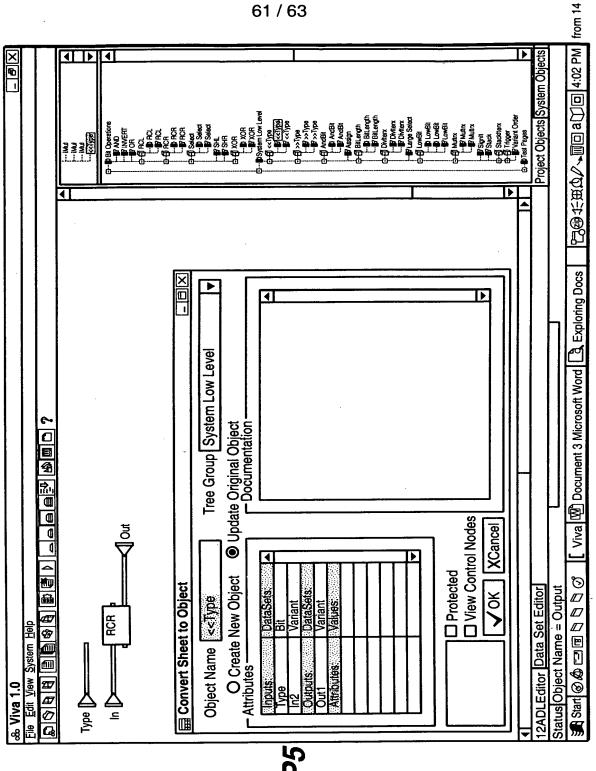


FIG._P5

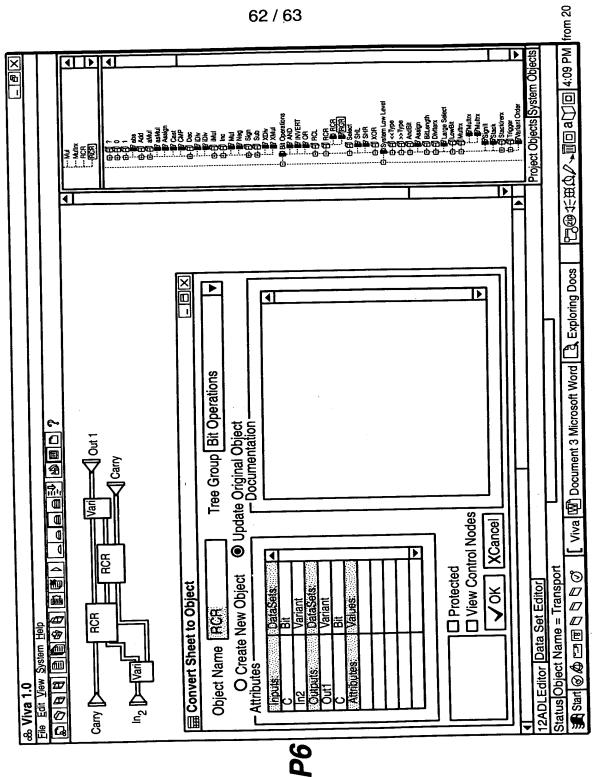


FIG._P6

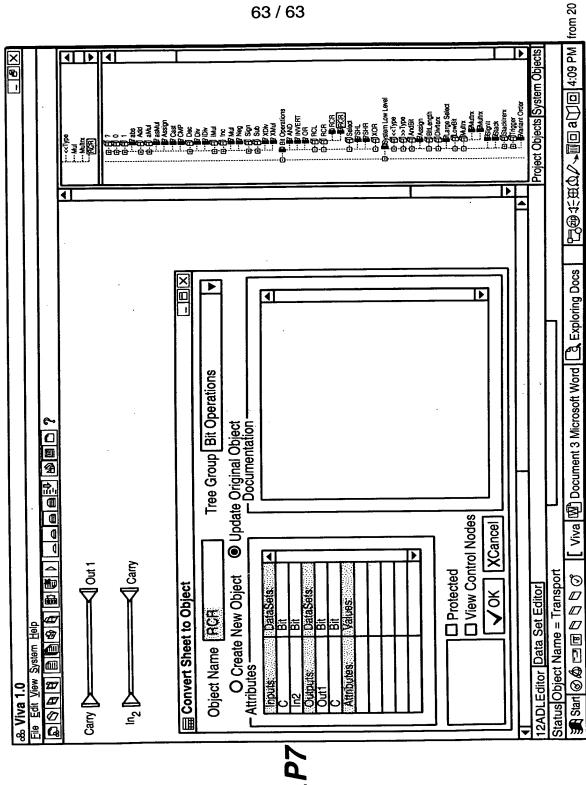


FIG._P7